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WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP
BRADFORD GREEN, BUILDING 5
755 MAIN STREET, P O BOX 224
MONROE, CT 06468

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BURD, KEVIN MICHAEL	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARKO LAMPINEN and TUOMAS SAUKKONEN

Appeal 2009-002518
Application 10/792,018
Technology Center 2600

Decided:[1] June 25, 2009

Before ROBERT E. NAPPI, MARC S. HOFF, and KARL D. EASTHOM, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] The two month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the final rejection of claims 3-7, 9-12, 14-18, and 20-25 (Br. 2).[2] We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

The Invention

Appellants' invention processes transmitted information in a CPICH (Common Pilot Channel) to estimate the signal to interference ratio in a spread-spectrum receiver. One embodiment of the receiver/transmitter system employs STTD (space-time transmit diversity) in which the power of the received CPICH is the combined power from each of a plurality of transmit antennas. (*See* Spec. 1:32 to 2:3; Fig. 2).

Exemplary claim 3 follows:

3. A method, comprising:

despreading a Common Pilot Channel (CPICH) channel in a spread-spectrum receiver, wherein the spread-spectrum receiver is adapted to receive a signal stream in space-time transmit diversity and the receiver comprises an equalization stage for chip level filtering of received chip, and wherein said despreading is carried out after said chip level filtering; and

estimating the signal to interference ratio at least partially from despread CPICH symbols.

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[2] Appellants' Brief (filed Mar. 17, 2008) ("App. Br.") and Reply Brief (filed July 1, 2008) ("Reply Br.") and the Examiner's Answer (mailed May 13, 2008) ("Ans.") detail the parties' positions.

Prior Art and Rejections

Petre	US 7,158,558 B2	Jan. 2, 2007 (filed Apr. 26, 2002)
Onggosanusi	US 2002/0196842 A1	Dec. 26, 2002

The Examiner rejected claims 3-7, 9-12, 14-18 and 20-25 as obvious under 35 U.S.C. § 103 based on Petre and Onggosanusi.

PRINCIPLES OF LAW

"[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability." *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Under § 103, a holding of obviousness can be based on a showing that "there was an apparent reason to combine the known elements in the fashion claimed." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Such a showing requires:

> "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" . . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

Id. (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

If the Examiner makes such a showing, the burden then shifts to Appellant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *Oetiker*, 977 F.2d at 1445.

ISSUE

Appellants argue that because "Onggosanusi does not disclose that the signal stream is in the form for space-time transmit diversity transmission," "Petre, in view of Onggosanusi, fails to render claim 3 obvious" (App. Br. 8) (emphasis deleted). Therefore, the issue on appeal is: Does Onggosanusi teach or suggest a "receiver . . . adapted to receive a signal stream in space-time transmit diversity" as recited in claim 3?

FINDINGS OF FACT (FF)

Appellants' Disclosure

1. Appellants' "invention provides a CPICH (Common Pilot Channel) processing method for estimating the SINR (Signal-to-Interference plus Noise Ratio) of the CPICH, in a SISO (single-input single-output) case and in a STTD (space-time transmit diversity) case" (Spec. 1:33 to 2:1). Appellants' invention also provides SINR estimation for a SIMO (single-input multiple-output) system (Spec. 4:24-25).

2. Appellants disclose that their transmitter either has a single antenna or "[a]lternatively, the transmitter has two or more antennas for transmitting the signal stream in order to achieve space-time transmit diversity . . . ." (Spec. 3:8-11). "According to the present invention, the communications signals are transmitted with a single antenna at a transmit side, or with space-time transmit diversity transmission." (Spec. 3:29-31).

3. "In the STTD case, the power of the received CPICH is the combined power from each of the transmit antennas. Multiple receive antennae processing can be applied with the CPICH processing" (Spec. 2:1-3). "For STTD the transmitted CPICH symbol pair as transmitted from two

antennas . . . is given by [a two-by-two matrix expression (1)]" (Spec. 4:29 – 5:2).

Onggosanusi

4. Onggosanusi discloses "transmit antenna diversity" in which a single or multiple receiver(s) receive(s) data from a plurality of transmitters (¶ 0007).

5. Onggosanusi's "system 100 is an STTD-type system rather than a MIMO-type system" (¶ 0084). "Fig. 4 illustrates an electrical block diagram of a double space time block coded transmit antenna diversity ('DSTTD') system 100 according to another preferred embodiment" (¶ 0082). "[S]ystem 100 is based on STTD communications" involving "double STTD encoding" (¶ 0089).

6. "Turning then to system 100 . . . STTD technology in general is known in the art" (¶ 0082). DSTTD system 100 has multiple antennas (*id.*). The "two STTD encoders 105_1 an[d] 105_2" in transmitter 102 render "system 100 . . . a 'double' STTD system" (¶ 0083; Fig. 4).

7. System 100 comprises two "STTD decoders" 110_1 and 110_2 in receiver 104 (¶ 0088; Fig. 4).

8. Onggosanusi's receiver uses a CPICH to determine channel effects H and the SINR to optimize the SINR (¶¶ 0056-57, 0069; Figs. 3, 4).

ANALYSIS

Appellants dispute the Examiner's finding that Onggosanusi teaches a space-time diversity scheme as set forth in claim 3. As Appellants note, Onggosanusi uses a double space-time block coded transmit antenna diversity (DSTTD) system. Appellants contend: "In this DSTTD system,

Onggosanusi uses two STTD encoders to combine information mutiplexing with transmit diversity MIMO." (App. Br. 8). Based on their contention, Appellants argue that "a signal transmitted in a DSTTD system is different from a signal stream in the space-time transmit diversity transmission, because a DSTTD system applies information multiplexing into two STTD blocks" (*id.*).

Appellants' argument lacks merit. Whatever difference exists between STTD and DSTTD, any argument based on the difference is not commensurate with the scope of claim 3. Claim 3 does not require "STTD," but rather, requires only the ability to "receive a signal stream in space-time transmit diversity."

Moreover, Appellants' arguments imply, and Appellants' disclosure shows, that STTD transmission is merely one form of space-time transmit diversity that employs at least two antennas (*see* FF 1-3). As the Examiner found (Ans. 4), Onggosanusi discloses antenna diversity and STTD transmission (FF 4-7). Specifically, Onggosanusi discloses "double *space time* block coded *transmit* antenna *diversity*" (FF 5) (emphasis added). Therefore, Onggosanusi teaches "space-time transmit diversity" as required by claim 3.

Appellants' related argument that "STTD is a special case of DSTTD involving two antennas instead of four as required by the system disclosed in Onggosanusi" (Reply Br. 3) does not rebut the finding *supra* that DSTTD constitutes a form of "space-time transmit diversity." Appellants disclose "*two or more antennas* for transmitting the signal stream in order *to achieve space-time transmit diversity*" (FF 2) (emphasis added). Therefore, Onggosanusi's four antennae do not preclude space-time diversity.

Appellants' related arguments (Reply Br. 2) based on embodiments in Onggosanusi employing a MIMO scheme in a DSTTD system have no bearing on Onggosanusi's Figure 4 embodiment depicting system 100, because Onggosanusi's DSTTD "system 100 is an STTD-type system rather than a MIMO-type system" (FF 5). The latter finding renders moot Appellants' argument (Reply Br. 2) that a MIMO based "DSTTD scheme in *Onggosanusi* is not applicable for space-time transmit diversity (STTD) transmission."

Appellants' conclusory argument (App. Br. 8) that "interference would not be correctly taken into account by the claimed pilot processing for the space-time transmit diversity transmission" lacks a sufficient factual foundation to support it. The argument also fails to explain how such a "correct[]" "account" is commensurate with the scope of claim 3. Further, the Examiner found (Ans. 3), without a sufficient factually supported rebuttal by Appellants, that Onggosanusi's system estimates the signal to interference ratio for a despread CPICH signal. The Examiner also found (Ans. 15), again without a sufficient factually supported rebuttal by Appellants, that Onngosanusi's system does account for the interference: "Due to operation of block 88[], the effect of inter-stream interference from the signals is suppressed. Throughout paragraphs 0089-0097, Onggosanusi discloses the processing in the receiver is done to optimize the system and the SINR or SNR is maximized." Onggosanusi supports the Examiner (*see* FF 8).

The Examiner's findings (Ans. 4-18) constitute "some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness," *see KSR*, 550 U.S. at 418, which Appellants have not rebutted.

Therefore, Appellants have not shown Examiner error in the rejection of claim 3.

Appellants' arguments (App. Br. 8-12) with respect to independent claims 6, 11, 17, and 24 track their arguments with respect to claim 3 and therefore raise the same issue. Accordingly, Appellants have not demonstrated Examiner error with respect to these claims for the reasons outlined above. Appellants' unsupported assertions (App. Br. 12-13) with respect to dependent claims 4, 5, 7, 9, 10, 12, 14-16, 18, 20-23, and 25, that the claims recite different limitations not found in the independent claims, do not constitute separate arguments for patentability, nor demonstrate error. *See Oetiker*, 977 F.2d at 1445; 37 C.F.R. § 41.37(c)(1)(vii). Appellants' primary reliance (App. Br. 12-13) on arguments presented for the independent claims 3, 6, 11, 17, and 24 also does not demonstrate Examiner error with respect to the dependent claims, for the reasons outlined above.

CONCLUSION

Onggosanusi teaches or suggests a "receiver . . . adapted to receive a signal stream in space-time transmit diversity."

DECISION

We affirm the Examiner's decision rejecting claims 3-7, 9-12, 14-18, and 20-25.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP
BRADFORD GREEN, BUILDING 5
755 MAIN STREET, P. O. BOX 224
MONROE, CT 06468